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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,605	10/19/2001	Yet-Zen Liu	030082.0019	3022

23865 7590 10/06/2003

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EXAMINER

SONG, SARAH U

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,605

Applicant(s)

LIU, YET-ZEN

Examiner

Sarah Song

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. This application has been filed with three (3) sheets of drawings, which have been approved by the Examiner.

Claim Objections

2. Claim 10 is objected to because of the following informalities: in line 4, change “channel” to –channels--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. **Claims 1, 2, 4, 5, 7, 8 and 10 are rejected under 35 U.S.C. 102(a) as being anticipated by Eden et al. (U.S. Patent 6,201,242).** Eden et al. discloses a photodetector comprising a plurality of parallel absorption channels 16-28 or 62-76 wherein the plural absorption channels receive/split incoming incident light. Regarding claims 2 and 8, it is additionally noted that the length of the plural parallel absorption channels is inherently less than the length of a single channel photodetector with substantially the same junction capacitance as that of the photodetector with the parallel channels. The method claims 4 and 5 set forth requisite steps for the detector operation; therefore the limitations are also inherent.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamamoto (U.S. Patent 6,205,163) in view of Kwa (U.S. Patent 4,989,214).** Hamamoto discloses a laser diode comprising a multi mode interference coupler. Hamamoto does not specifically disclose a photodetector of the same configuration. Kwa discloses that a laser diode can operate as a photodetector by reversing the bias across the doping junction (column 1, lines 38-46). It would have been obvious to one having ordinary skill in the art to provide a photodetector of the same configuration as the laser diode of Hamamoto by reversing the bias across the doping junction. It would have been obvious to one of ordinary skill in the art to reverse the bias to operate the laser diode as a photodetector. One of ordinary skill in the art would have been motivated to make the modification to attain the same benefits achieved by the laser diode of Hamamoto, such as improved device efficiency with simple device structure (column 5, lines 61-39), but in reverse operation. It is noted that with a reverse bias, the “N-side” comprises a plurality of absorption channels for receiving incident light, wherein the plural channels split the incident light and operate as multi mode interference couplers. Regarding claims 2 and 8, it is additionally noted that the length of the plural parallel absorption channels is inherently less than the length of a single channel photodetector with substantially the same


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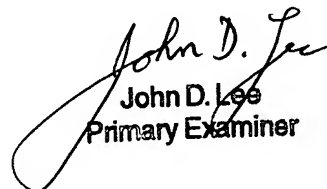
junction capacitance as that of the photodetector with the parallel channels. The method claims 4-6 would have also been obvious for the same reasons.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Zheng (U.S. Patent Application Publication 2003/0108294) discloses a photodetector comprising a 1xN multi mode interference coupler.

8. Any inquiry concerning the merits of this communication should be directed to Examiner Sarah Song at telephone number 703-306-5799. Any inquiry of a general or clerical nature, or relating to the status of this application or proceeding should be directed to the receptionist at telephone number 703-308-0956 or to the technical support staff supervisor at telephone number 703-308-3072.


sus


John D. Lee
Primary Examiner